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**GOING BEYOND THE FARM BOUNDARY**

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***Management advice for farms in the Burkina Faso cotton zone, a new approach to extension services***

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**Abstract**

Farmers in the Burkina Faso cotton zone require advice appropriate to the variety of situations that they encounter. A farm management advice method has accordingly been developed by research institutions and extension services. It has been successfully introduced in some 30 villages within the framework of the national extension service. The target group consists of farmers who are able to read and write in the local language. They analyse the technical and economic performance of their farms with the help of an extension agent. This analysis leads to advice on equipment and stock, crop and livestock management. It also leads to technical innovations. Information and techniques are provided to all interested farmers in the village. It is sought to render farmers more responsible and to establish sustainable methods. The sustainability of the institutional framework is analyzed.

**Keywords:** farming system, management advice, agricultural extension, Burkina Faso

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Experiments on providing farm management advice have been developed in certain countries. These initiatives are intended to revitalise agricultural extension by developing approaches addressing the technical and economic management of farms. But there have been few experiments in Africa, even if consideration of the improvement of extension systems has always been the subject of considerable interest. Some works could be quoted : in Senegal in the 1970s (Benoît-Cattin 1986), in Mali in the 1980s (Kleene et al. 1989, in Côte d'Ivoire in 1990 or in Benin in 1995 (Inter-Réseaux 1996).

The agricultural extension provided in Burkina Faso by CRPAs has applied the Training and Visit System (Benor et al. 1984) since 1987. The main tools used by extension agents in the field are training plots, activities concerning large groups of farmers, close monitoring of a few farmers and the organisation of visits to farmers' fields.

## 1. Farm Management advice

### 1.1. Need for farm management advice in the cotton zone and objectives of the study

Farms in the cotton zone are already partially integrated in the market economy and caught up in a process of change characterised by the introduction of animal traction, the partial integration of livestock farming in agriculture and the use of inputs from external sources. The farmers who have significant cash incomes are discovering the problems related to fluctuations of market prices. They can opt for different degrees of intensification. In addition, farms differ considerably especially with regard to the level of equipment (Belem, 1985). In the zone, there is thus demand by farmers for overall advice on the functioning of their and related to the type of the farm.

An experiment on the development of farm management advice was therefore initiated in this favourable context in 1993 (Faure et al. 1996) within the framework of collaboration between the research sector and extension structures. Management advice is an approach integrating all the technical, economic and social objectives of farms (Hemidy et al. 1996). The aim of the operation is to improve functioning by better allocation of the resources available and by speeding up technology transfer processes. The experiment was started in three villages and then extended in 1994 to some 30 villages where it continues today.

The objective of this research is the design of a method for training farmers in farm management which must:

- match the specific requirements of different types of farms,
- enhance the analytical and decision-making capability of farmers,
- be able to be incorporated in the existing extension system,
- be able to concern a significant proportion of the farmers in a region,
- be financially bearable for development operators.

### 1.2 Management advice in practice

Management advice is provided first for literate volunteers in groups of 10 to 20 who meet regularly at fortnightly intervals. These first participants thus necessarily form a limited group of farmers but who can and are ready to play a role in the diffusion of information and technical innovations in their immediate neighbourhood.

Special attention is paid in the first stage to analysis of the functioning of the farms. At sessions in a room in the village, each volunteer fills in an individual notebook to enable the diagnosis of his farm. The notebook is completed in Dioula and French and addresses questions concerning farm structure, the monitoring of crop and animal production, technical and economic analysis of the results by crop and analysis of the economic results in terms of food production and cash flow. Thus, two or three different cases are chosen among the participants for a given sheet in the notebook. They are copied on the blackboard for all the participants and discussed by the group. Field visits in or outside the village broadens the scope of the work. The result of

these different appraisals leads to discussions concerning the improvement of farm technical and financial performance. This is followed by the identification and establishment of a development plan for several farms or technical innovations chosen from a selection.

However, a larger group of farmers than those attending the management classes should be reached. An objective of about 30% of farmers in the village has been expressed in the light of research work on extension (Röling 1988). Several methods have been examined, including (i) the organisation of guided visits to field operations for other farmers in the village, (ii) the holding of management advice sessions broadened to include opinion leaders, (iii) the identification of farmers willing to run management advice sessions or farmers willing to help several farmers in the village who wish to carry out certain operations.

Tools were designed to develop this method (management advice notebook, technical sheets, guide for organisers, monitoring-evaluation sheets, etc.) and training was provided for advisors, organising farmers and extension agents using specific training modules. After several years of experience, a balance is now drawn up, the advantages of the method analysed, the conditions for its success analysed and its limits specified.

## 2. Choice of methodology

### 2.1. Target public: literate or schooled persons

Working with literate persons makes it possible to perform analyses using data collected by these persons and in particular to introduce economic elements in the reasoning (gross margin, stock evaluation, etc.). The target public is relatively limited with this option (rural school attenders, newly literate persons, young people who have returned from the town, etc.). Only 60 % of villages can assemble 10 school-attending or literate persons and only 40% can find more than 20 (Fayolle and Kaigama 1993). The audience as a whole represents 5 to 12% of farms in the villages participating in the management advice sessions. The extension of the results of literate persons to the other farmers is a delicate phase that must be approached from the very beginning with all the villagers during preliminary information meetings.

An evaluation of the results performed in 1994 by PDRI-HKM in 6 villages on 70 participants showed that 95% of the participants were satisfied with the explanations provided for filling in the tables and 60% found this easy.

### 2.2. Participatory methods and simple tools

A number of hypotheses and methodological choices have guided the definition of the method and the tools used.

The method stresses group dynamics within the framework of substantially participatory procedures. Here, it is inspired by the procedures used by the CETAs: Centres d'Etudes des Techniques Agricoles (Chombart et al. 1969). Whereas filling in the notebook is an individual act, reflection is collective. Field observations show that in the great majority of villages at least 50% of the participants succeed in filling in all their notebooks without outside aid. In spite of this, strong dynamics become established with the advisor running the sessions.

The approach used thus does not aim at providing individual advice, which is certainly an attractive idea but financially impossible to provide for a significant number of farmers.

The method awards equal importance to classroom and field training. It is therefore partially inspired by "over the hedge" extension theories. Classroom sessions are held every two weeks and are completed by field visits.

The method takes farm diversity into account. The analysis of real cases by the group shows the diversity of



the situations used as material for reflection and for the identification of constraints and possible solutions. After joint reflection, each farmer defines his own objectives that he may possibly explain to the group.

The method lays stress on a simple process mastered by farmers. Data collection, analysis of the results, formulating advice and performing operations are carried out by the group. The tools used must be simple in this context (analysis of gross margins, simplified farming accounts, etc.). In spite of this, an effort must often be made on basic training at the beginning of the operation to enable most of the participants to attain the necessary level in reading, writing and arithmetic.

The method closely combines the analysis phase and the advisory phase in a technical and economic approach. The experiments performed in Senegal and Mali have led to drawing up a programme in which at each session aspects of diagnoses are related as rapidly as possible with the practical lessons that can be drawn from them. Such a choice keeps up the interest of the participants throughout the year. As far as possible, the analysis of situations starts with technical features (crop management, management of stocks of inputs, etc.) that can easily be understood by the participants, with an attempt to introduce economic notions (production cost, gross margin, etc.) during the same session.

The method is aimed at ensuring the confidentiality of data. Special attention must be paid at management advice sessions not to address questions that are considered to be too personal. Thus, the sheets contain no information concerning family budgets (gifts, dowries, etc.). Likewise, the analysis of farm accounts is not followed by group discussion. Comments are made only on the results drawn from sub-sets of information (analysis of gross margin by crop, analysis of food or inputs, etc.).

### 3. Strategic advice, tactical advice and transfer of technology

What type of advice is provided with the method tested? It is shown here by means of several examples that it has been possible to improve strategic advice (purchase of equipment, stock management,...). It has also been possible to address tactical advice (crop management, use of inputs,...) and transfer of technology.

#### 3.1. Advice concerning equipment

The desire for mechanisation—mainly with animal traction—accounts for the main strategies used by farmers (Rebuffel 1996). They are conditioned by the possibility of access to land and the ability to obtain labour. The cotton crop is a lever that generates the necessary financial resources and provides access to rare credit for equipment. Cattle farming is used to regulate capitalisation phenomena. It therefore seems timely to provide advice adapted to the development phase of farms and enabling possible rational transition from one phase to another. This is strategic advice aimed at the drawing up of an equipment plan and addressing the choice of crop and the level of intensification to make the operation profitable.

Thus the feasibility of a farm equipment credit activity was tested in one of the villages monitored (Soumouso) in 1992/1993 in relation with the CNCA (*Caisse Nationale de Crédit Agricole*), with the credit application adjusted to real farm requirements. Fifteen of some twenty participating farmers were awarded credit (73% purchased oxen and only 27 % purchased complementary equipment).

#### 3.2. Management of food stocks

It is accepted that food production is abundant in the cotton zone and that marketing capacity limits increased production. This observation should not hide the variability of situations between different farms and in different years. Thus, analysis of the data gathered in the management advice notebooks showed that in 1993 nearly 20% of the farms monitored displayed a cereal deficit and 60% had a surplus (Djiguemde et al. 1994). It is essential that holding operators should evaluate the food stocks required to feed their families and the amount available for sale. Thus, the analytical sheet for family structure and that for the monitoring of the farming season cover the subject in depth. An appraisal survey performed in 1995/96 on management advice

participants in four villages showed that over 75% of the persons questioned said that they could manage their food resources better (Faure et al. 1996).

### 3.3. The diffusion of innovations

Farmers always ask for advice concerning crop, herd or land management. This is tactical advice in which the means of production and their implementation during the farming season are determined (Capillon, 1993). Analysis of the monitoring sheets for the various fields of certain farmers makes it fairly easy to show differences in practices and to relate them to farmers' objectives and constraints and to the recommendations made by development companies. In this context, there is very strong demand for testing new technologies that make it possible to increase production and that contribute to the emergence of sustainable agriculture. The table below containing data collected by extension services provides an estimate of farmers' achievements within the framework of management advice sessions.

	1993	1994
Monitored villages	3	32
Farmers involved	45	440
Farm improvements		
Individual tree nursery	8	32
Controlled land clearing	2	5
Runoff control with stones	-	33
Runoff control with Andropogon or with trees	8	24
Hedges with trees	12	55
Trees plantations	2	22
Mixed farming		
Crop residues storage	36	250
Plot of perennial forage (stylosanthes)	7	36
Plot of annual forage (maize+dolichos, sorghum)	31	43
Cowsheds and manure pits	19	68
Ox feeding (animal traction)	19	30
Cow feeding (milk production)	-	20
Cropping system		
Tillage in dry condition	2	15
Use of manure	3	60
Use of mechanical seeder	-	5
Weeding with one animal (maize, rice)	2	8
Integrated pest management on cotton	30	150
Rainfed rice	20	115

Table 1. Estimate of technical achievements by farmers participating in management advice sessions (Faure et al. 1996).

These results would appear to show the ability of the method to improve the diffusion of technical innovations thanks to a participatory approach and an overall approach to farms.

### 4. The viability and impact of management advice

#### 4.1. Extension of the results

How can the management advice method be extended to other groups of farmers? What impact can it have on the other farmers in the village? These questions are asked by all the actors (extension services,



researchers, donors, etc.).

In some villages, the research and development team has entrusted the running of management advice sessions to farmers in order to enhance the training of farmers by farmers and to make up for the shortage of extension service staff. In early 1995, a training session attended by about thirty farmer organisers was held on this subject. In 1997, nearly a dozen farmer organisers still ran management advice sessions fairly regularly and monitored the technical operations performed by farmers with the aid of an extension agent (A. Bonnassieux, comm. pers.).

It is certain that the field visits organised for all the villagers and meetings in the village on specific subjects have an impact on the practices of farmers who do not participate in the management advice sessions. The theory concerning transmission of knowledge in agricultural extension and application in the Training and Visit System shows this.

It was found that the results obtained in a management advice group can generate dynamics within the village. However, the extension of the results mainly concerns the diffusion of simple technology. Strategic advice and approaches in economic terms are hardly approached at the scale of the village. A substantial research effort remains to be made to improve the proposals and develop operational tools for illiterate farmers in order to draw the most from management advice.

#### 4.2. Incorporation in an institutional framework

Management advice is an extension tool and should be incorporated in an institutional framework. The method developed thus enhances the Training & Visit Method applied by the CRPA. There are many similarities (Benor et al. 1984): the importance of the training programmes provided throughout the year on current problems of the farming calendar, group training sessions with meetings every fortnight, introduction by farmers of new technology tested in their fields, diffusion of innovations through discussions between farmers during group visits, etc. The differences mainly concern more participatory methods, an overall approach to farms, the introduction of simple notions of production economics, rational introduction of techniques according to requirements and the importance awarded to logistics, which is absent from the present extension system.

This choice enabled the maintaining of management advice operations within the framework of the national extension system. Some 45 villages have been concerned by the experiment since 1994. In 1997, the method was used in 27 villages including 14 concerned since 1994 (Bonnassieux 1997). Cases of abandoning result mainly from the difficulty of mobilising certain field extension agents for this approach that requires more substantial professional involvement and a higher level of training. In this context, no aid is provided for input supply and the technical innovations diffused are more limited: establishment of nurseries, various forms of tree planting, storage of crop residues, manure production, etc. (A. Bonnassieux, comm. pers.).

However, it is also possible to imagine advice that would become a management tool at the service of agriculture. The advisers could become employees of farmers' organisations that wish to develop service related to training and information for their members. A 1998 support project for farmers' organisations in western Burkina Faso thus includes such an approach with the participation of about ten organisers managed and paid by federal structures of unions of 15 to 30 villages.

#### 4.3. Institutional viability

In addition to incorporation in an institutional framework, what are the conditions for the success of a management advice operation in a zone in which farmers do effectively have questions concerning the optimisation of factors of production? Several features should be noted:

1. Before such an operation is undertaken, good knowledge of the farms is necessary, together with technical

and economic references concerning the appropriate technical innovations. The existence of relevant research and development work is therefore a prerequisite.

2. It is essential to stimulate the establishment of a central unit—preferably pluridisciplinary and/or with multi-institutional participation—for the co-ordination, evaluation and training of the advisors and farmer-organisers. It should also supervise the renewal of the tools used in management advice.

3. The existence of a post-literacy service is extremely useful for enhancing the training of producers and to aid in the production of teaching material.

It would seem necessary to rationalise the establishment of a network of advisors capable of providing support for farmer-organisers and 'relay' farmers in order to hope to reach a significant fraction of farmers. Today, in Burkina Faso, the entire extension system is handled by the state in a context of structural adjustment that is leading to a drastic reduction of field staff. Is it possible to identify other private and public funding mechanisms?

Although the funding of a central unit can only be reasonably envisaged in the short term within the framework of public funding, it would seem possible to make other hypotheses for advisers and farmer-organisers. The latter can be paid (indemnity and/or salary and operating costs) partly by the management advice session participants and partly by village groups with financial resources. However, it is not realistic to make these beneficiaries cover all the costs. Like the mechanisms used in the Benin cotton zone, it is possible to pay farmers' organisations (village groups or unions of groups) according to the quantity of cotton marketed, enabling the payment of the paid technical staff of these organisations. With this organisation, the total cost of a support mechanism to develop management advice would seem comparable to that of a classic agricultural extension service.

## CONCLUSION

The development of a management advice method that can form part of an institutional framework meets demand from certain farms, extension services and certain donors. It also makes it possible to address farm management, to help farmers to optimise their factors of production and to improve the diffusion of new technology. It is certain that numerous research results should be examined in greater depth before final conclusions are drawn. However, in the light of the first results, it would seem possible to extend the experiment to a large number of villages in the cotton zone at a controllable financial cost.

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